

Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application:

Claims 1-37 (Cancelled).

38. (New) A wireless mobile cellular phone having a plurality of antennas, comprising:
a QPSK mapper configured to receive input data;
a first MTCM encoder and QPSK mapper unit operatively coupled to the QPSK mapper;
a first symbol selector and puncturer operatively coupled to the first MTCM encoder and QPSK mapper unit, the first symbol selector and puncturer being configured to provide a first channel-coded symbol stream;
a symbol interleaver operatively coupled to the QPSK mapper;
a second MTCM encoder and QPSK mapper unit operatively coupled to the symbol interleaver;
a symbol de-interleaver arrangement operatively coupled to the second MTCM encoder and QPSK mapper unit;
a second symbol selector and puncturer operatively coupled to the symbol de-interleaver arrangement, the second symbol selector and puncturer being configured to provide a second channel-coded symbol stream; and
an encoder operatively coupled to the first symbol selector and puncturer and to the second symbol selector and puncturer, the encoder being configured to receive the first channel-coded symbol stream and the second channel-coded symbol stream, the encoder providing space-time coding to the first channel-coded symbol stream and to the second channel-coded symbol stream, the encoder generating a first space-time-channel-coded symbol stream and a second space-time-channel-coded symbol stream,
wherein the wireless mobile cellular phone supports orthogonal frequency division (OFDM) multiplexing.

39. (New) The wireless mobile cellular phone according to claim 38, wherein the wireless spread spectrum mobile cellular phone supports redundant non-binary modulation in combination with a finite-state encoder.

40. (New) The wireless mobile cellular phone according to claim 38, wherein the wireless mobile cellular phone supports code division multiple access, voice communications, multimedia communications and navigational communications.

41. (New) The wireless mobile cellular phone according to claim 38, wherein the wireless mobile cellular phone supports spread spectrum modulation.

42. (New) The wireless mobile cellular phone according to claim 38, wherein the wireless mobile cellular phone supports voice communications and multimedia communications.

43. (New) The wireless mobile cellular phone according to claim 38, wherein the wireless mobile cellular phone supports navigational communications.

44. (New) The wireless mobile cellular phone according to claim 38, wherein the wireless mobile cellular phone supports a Universal Mobile Telecommunications System mobile communications device.

45. (New) The wireless mobile cellular phone according to claim 38, wherein the symbol de-interleaver arrangement comprises a plurality of symbol de-interleavers.

46. (New) A wireless spread spectrum mobile cellular phone having a plurality of antennas in which two of the plurality of antennas are each configured to transmit one of a first space-time-channel-coded symbol stream and a second space-time-channel-coded symbol stream, the wireless spread spectrum mobile cellular phone comprising:

a QPSK mapper configured to receive input data;

a first MTCM encoder and QPSK mapper unit operatively coupled to the QPSK mapper;

a first symbol selector and puncturer operatively coupled to the first MTCM encoder and QPSK mapper unit, the first symbol selector and puncturer being configured to provide a first channel-coded symbol stream;

a symbol interleaver operatively coupled to the QPSK mapper;

a second MTCM encoder and QPSK mapper unit operatively coupled to the symbol interleaver;

a symbol de-interleaver arrangement operatively coupled to the second MTCM encoder and QPSK mapper unit;

a second symbol selector and puncturer operatively coupled to the symbol de-interleaver arrangement, the second symbol selector and puncturer being configured to provide a second channel-coded symbol stream; and

an encoder operatively coupled to the first symbol selector and puncturer and to the second symbol selector and puncturer, the encoder being configured to receive the first channel-coded symbol stream and the second channel-coded symbol stream, the encoder providing space-time coding to the first channel-coded symbol stream and to the second channel-coded symbol stream, the encoder generating the first space-time-channel-coded symbol stream and the second space-time-channel-coded symbol stream,

wherein the wireless spread spectrum mobile cellular phone supports voice communications, multimedia communications and navigational communications.

47. (New) The wireless spread spectrum mobile cellular phone according to claim 46, wherein the wireless spread spectrum mobile cellular phone supports redundant non-binary modulation in combination with a finite-state encoder.

48. (New) The wireless spread spectrum mobile cellular phone according to claim 46, wherein the QPSK mapper, the first MTCM encoder and QPSK mapper unit, the first symbol selector and puncturer, the symbol interleaver, the second MTCM encoder and QPSK mapper unit, the symbol de-interleaver arrangement, the second symbol selector and puncturer and the encoder are part of one or more wireless transmitters.

49. (New) The wireless spread spectrum mobile cellular phone according to claim 46, wherein the wireless spread spectrum mobile cellular phone supports code division multiple access.

50. (New) The wireless spread spectrum mobile cellular phone according to claim 46, wherein the wireless spread spectrum mobile cellular phone supports orthogonal frequency division multiplexing.

51. (New) The wireless spread spectrum mobile cellular phone according to claim 46, wherein the wireless spread spectrum mobile cellular phone comprises a Universal Mobile Telecommunications System phone system.

52. (New) The wireless spread spectrum mobile cellular phone according to claim 46, wherein the wireless spread spectrum mobile cellular phone supports redundant non-binary modulation in combination with a finite-state encoder.

53. (New) The wireless spread spectrum mobile cellular phone according to claim 46, wherein the wireless spread spectrum mobile cellular phone supports telemetry communication systems.

54. (New) The wireless spread spectrum mobile cellular phone according to claim 46, wherein the wireless spread spectrum mobile cellular phone supports space-time turbo-coded modulation.

55. (New) The wireless spread spectrum mobile cellular phone according to claim 46, wherein the wireless spread spectrum mobile cellular phone supports block space-time coding.

56. (New) The wireless spread spectrum mobile cellular phone according to claim 46, wherein the wireless spread spectrum mobile cellular phone supports convolutional space-time coding.

57. (New) The wireless spread spectrum mobile cellular phone according to claim 46, wherein the plurality of antennas are arranged so that a fading correlation between the antennas is below 0.5.